

Application No.: 10/786,096

Amendments to the Drawings:

Please substitute the enclosed sheet of drawings for the original drawing sheet containing Figs. 3 and 4.

REMARKS

Applicants have carefully considered the August 25, 2005 first Office Action. Applicants are submitting a revised version of Fig. 4. That drawing change, the above amendments to the specification and claims, and these comments are presented in a bona fide effort to address all issues raised in that Action. Prompt favorable reconsideration of this matter is earnestly solicited.

Page 2 of the Detailed Action recited an objection to the drawings, on the ground that the drawings did not show the 'third field of illumination' referred to in several of the claims. Attached herewith is a Substitute Sheet of drawings, for the sheet containing Figs. 3 and 4. On the Substitute Sheet, dotted lines have been added to Fig. 4 to represent three (or more) fields of illumination. The first two fields of illumination are similar to those in original Fig. 2 and are similarly numbered. The additional field(s), labeled 130a and 130b, are illuminated by light emerging through one or more ports. Support for this drawing change appears in the original specification, drawings and claims (see e.g. claims 2-4 and paragraphs [0013] and [0061]). Hence, the drawing change should not introduce new subject matter. Revised Fig. 4 clearly shows a third field of illumination. Approval of the drawing change and withdrawal of the objection are respectfully requested.

In view of the change to Fig. 4, Applicants also have revised the detailed description of that drawing to refer to the fields of illumination and to use the appropriate reference numbers. The changes to the description should be adequately supported by the same aspects of the original disclosure that support the change to Fig. 4. The changes to the detailed description therefore should likewise not introduce new subject matter.

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Claims 1-6, 9, 11, 22 and 25-27 were rejected under 35 U.S.C. § 102(b) as anticipated by Applicants' own US patent no. 6,286,979 to Ramer et al. (hereinafter the '979 patent).

Claims 7, 8, 10 and 23 were rejected under 35 U.S.C. § 103 as unpatentable over the '979 patent in combination with commonly assigned US patent no. 5,967,652 to Ramer et al. (hereinafter the '652 patent).

Claims 12-21, 24 and 28 were rejected under 35 U.S.C. § 103 as unpatentable over the '979 and '652 patents, further in view of Korean publication 2004021274 to Ju et al. (hereinafter Ju).

These rejections are traversed.

First, the rejection using Ju is improper on its face, because the Ju publication is not "prior" art with respect to the claims in this application. The Ju document was published on March 10, 2004. As a foreign application publication, it is not effective as of any other date, under the relevant US law (see 35 U.S.C. § 102). The March 10, 2004 publication date of Ju is later than the February 26, 2004 filing date of this application. Since Ju is not prior art, the rejection over the combination of the '979 and '652 patents with Ju is improper and should be withdrawn.

The independent claims have been amended above to make somewhat clearer several of the distinctions over the '979 patent, which Applicants believed were present in the original claims at the time of filing if properly construed. It is respectfully submitted that the '979 patent does not meet the independent claim limitations, and neither does the combination of that patent with the '652 patent. Hence, the rejections over the '979 patent alone or in combination with the '652 patent should be withdrawn. A more detailed explanation of the claimed distinctions follows.

Although they differ in scope on several points, independent claims 1 and 14 both relate to an indirect lighting system comprising a source, an optical cavity, an aperture and a mask. Both claims also have been amended to more clearly recite characteristics of a section of the wall of the optical cavity. As claimed, at least a section of the cavity wall exhibits both a transmissive characteristic and at least a partially diffusely reflective characteristic. The transmissive characteristic enables the section of the cavity wall to pass a first portion of the light. This portion of light from the source passes through the wall section toward a first field of illumination. By the express language of these claims, the “transmissive” characteristic entails an ability to allow some of the light to pass through the section of the cavity wall itself. In addition, the partial diffusely reflective characteristic enables the section of the cavity wall to diffusely reflect some of the light from the source within the cavity.

Although the examples in the application disclosure do not limit the scope of the claims, it may be helpful to consider an example from the application, with reference to application Fig. 1. In that example, system 10 includes an optical cavity 13 for receiving light from the source 11. The cavity 13 has a wall 15. At least a section of the cavity wall 15 is somewhat transmissive with respect to light of the wavelength(s) emitted by the source 11. Hence, that part of the wall 15 passes and diffuses a first portion of the light from the source 11, as represented by rays a, over a first field of illumination represented generally by the dotted line at 17. Attention is directed to paragraph [0027] of Applicants specification. The cavity wall 15 has a diffusely reflective inner surface. This inner surface diffusely reflects a second portion of the electromagnetic radiation from the source 11 within the cavity 13. An aperture 19 of the optical cavity 13 faces toward a second field of illumination, represented generally by the dotted line at 21. The system 10 also includes a mask 23. Attention is directed to paragraph [0038] of

Applicants specification. The system 10 provides constructive occlusion illumination of the second field 21. The light source 11 may emit some light directly through the gap between the aperture 19 and the edges of the mask 25. Light rays impacting on the diffusely reflective surfaces, particularly those impacting on the inner surface of the cavity 13 and the facing surface 25 of the mask 23, reflect and diffuse one or more times within the confines of the system 10, as represented by the exemplary ray arrows b and c. After one or more such diffuse reflections, light eventually emerges through the gap between the perimeter of the aperture 19 and the edges of the mask 23, as represented for example by the arrows d. Attention is directed to paragraph [0049] of Applicants specification.

It is respectfully submitted that the '979 patent does not disclose a lighting system in which any one wall of the cavity has a section that exhibits **both a transmissive characteristic** and at least a **partially diffusely reflective characteristic**, as required by independent claims 1 and 14.

The rejection of claims 1 and 14 referred specifically to the examples in Figs. 2 and 5A of the '979 patent. In the example of patent Fig. 2, a base 213 forms a cavity 215. The inner surface of the cavity 215 is diffusely reflective (column 7, line 59-61). There is no express teaching that the diffusely reflective wall of the cavity 215 has a section that also exhibits a **transmissive characteristic**, as in claims 1 and 14. In the example of patent Fig. 5A, the system 411 comprises a base 413 having a diffusely reflective cavity 415. There is no express teaching that the diffusely reflective wall of the cavity 415 has a section that also exhibits a **transmissive characteristic**, as in claims 1 and 14. There is no discussion that light passes through a section of the cavity wall itself.

With respect to claim 1 (page 3 of the Detailed Action) and apparently with respect to claim 14 (apparently mis-numbered reference to claim 1 after discussion of claim 11, on page 4 of the Detailed Action) the anticipation rejection alleges that the cavity 415 is transmissive, because the system of the '979 patent "provides an intensity distribution for radiant energy illumination of a first region." Radiant energy distribution over one or more regions is not enough to meet the claim language in question. The claims do not say that the cavity is transmissive, that is to say the volume contained within the wall(s). These claims instead recite that the section of the cavity wall is diffusely reflective and that that section of the cavity wall is also transmissive. As claimed, the additional transmissive characteristic allows the section of the cavity wall to pass a portion of the light from the source through the wall section itself toward a first field of illumination. As noted above, the disclosure of diffusely reflective cavity walls in the '979 patent simply does not suggest this additional transmissive characteristic of the section of the cavity wall.

For at least these reasons, claims 1 and 14 are not anticipated by the '979 patent and the anticipation rejection of those claims and various claims that depend from 1 and 14 should be withdrawn.

Claim 1 and dependent claim 15 specify an additional element not found in the '979 patent. These claims recite a baffle that is at least partially transmissive. As recited in these claims, the baffle is outside the cavity and between the section of the cavity wall and the first field of illumination. The transmissive nature of the baffle enables it to pass at least some of the first portion of the light through to the first field of illumination. The rejection identified a disclosure of a baffle in column 18, lines 64-67, of the '979 patent. However, the cited disclosure from the '979 patent suggests use of a baffle within the cavity. Such a baffle within

the cavity does not satisfy the baffle requirements of claims 1 and 15; and for this additional reason, claims 1 and 15 (and claims dependent therefrom) are not anticipated by the '979 patent.

Claim 22 relates to a system for projecting electromagnetic radiation. The system of that claim includes a source of the electromagnetic radiation, an optical cavity having a wall and an aperture, and a mask to occlude the aperture. As claimed, at least a section of the cavity wall is both partially transmissive and partially diffusely reflective. As a result, the wall section passes and diffuses a first portion of the electromagnetic radiation from the source through the wall toward a first field of illumination, and the wall section diffusely reflects a second portion of the electromagnetic radiation from the source within the cavity. Since the '979 patent, particularly in the sections cited in the rejection, teach only diffuse reflectivity of the cavity, the patent does not meet the additional claim requirement that the cavity wall section is partially transmissive so that a first portion of the electromagnetic radiation from the source passes through and is diffused from the wall section, toward a first field of illumination. The '979 patent therefore does not anticipate claim 22, and the rejection thereof should be withdrawn.

The lighting system of claim 25 includes a light source, a diffuse reflector and two transmissive diffusers. Both diffusers allow some light to pass there through, but both diffusers also reflect some light. In this regard, claim 25 specifically recites that the first transmissive diffuser allows a portion of light from the source and from the diffuse reflector to pass through and diffuse from the first transmissive diffuser. The recited first diffuser also reflects a portion of the light from the source and from the diffuse reflector. The claim then recites that the second transmissive diffuser reflects and diffuses a first portion of the light that has already passed through the first diffuser. Also, the claim recites that the second transmissive diffuser allows a second portion of the light that already passed through the first diffuser to pass through the

second transmissive diffuser. In this way, the second diffuser transmits the second portion of the light to a first field of illumination. A gap between the diffuse reflector and the first diffuser allows emission of additional light from the source over a second field of illumination.

Although the examples in the application disclosure do not limit the scope of the claims, it may be helpful to consider an example from the application, with reference to application Fig. 6. For purposes of direct lighting of the first field of illumination, the wall 115 of cavity 113 functions as a first diffuser. The system 111" of Fig. 5 includes a partially transmissive partially reflective type of baffle, which in the example, comprises a second diffuser 129. Attention is directed to application paragraph [0085]. The drawing shows the source at 121, and the mask 119 would be a form of diffuse reflector. As shown in the drawing, the first transmissive diffuser 115 allows a portion (rays a) of light from the source 121 and from the diffuse reflector 119 to pass through and diffuse from the first transmissive diffuser. However, that first diffuser 115 reflects a portion of the light from the source and from the diffuse reflector back within the cavity 113. The second transmissive diffuser 129 reflects and diffuses a first portion of the light that already passed through the first diffuser (see illustration in Fig. 6). Also, the second transmissive diffuser allows a second portion (rays e) of the light that already passed through the first diffuser to pass through the second transmissive diffuser. Attention also is directed to other examples, such as shown in Figs. 2, 13 and 16.

It is respectfully submitted that the '979 patent does not disclose a lighting system comprising a diffuse reflector and the two diffusers, both of which reflect some light and allow some light to pass there through, in the manner specifically recited in claim 25. The rejection of claim 25 (page 4 of Detailed Action) cited the base 413 as an alleged first diffuser and the baffle in the cavity (column 18, lines 64-67) as the alleged second diffuser. However, the base and

baffle are not arranged in the manner required by claim 25. The baffle does not pass and reflect portions of light that have already passed through the base. The baffle is inside the reflective cavity formed in the base. Also, the cited text of the '979 patent teaches only that the baffle and the base are reflective. There is no express teaching that the baffle and the base are also transmissive, that is to say that they allow some portion of light to pass through the material or structure thereof, as opposed to being reflected back off the respective base and baffle surfaces.

For at least these reasons, claim 25 is not anticipated by the '979 patent and the anticipation rejection of that claim and the claims that depend from it should be withdrawn.

The rejection based on the combination of the '979 patent with the '652 patent also should be withdrawn. As noted above, the '979 patent does not meet a number of limitations expressly recited in independent claims 1 and 22. Rejected dependent claims 7, 8, 10 and 23 incorporate those limitations from the respective independent claims. The obviousness rejection cited the '652 patent only for its teachings of particular recited values of reflectivity percentage. Use of materials providing the recited percent reflectivity taken from the '652 patent, in the context of the systems disclosed in the '979 patent, still would not satisfy the independent claim recitations discussed in detail above. Since the resulting combination would not meet the independent claim limitations, it also would fail to meet the limitations of dependent claims 7, 8, 10 and 23. Applicants therefore submit that these dependent claims are patentable over the applied prior patents.

Statement:

Applicants would like to point out to the Examiner that they believe that many of the claims in this case read on the Series 15 product from Finelite. That product incorporates principles of constructive occlusion, and portions of the structure forming the cavity are both

diffusely reflective and transmissive. To meet Applicants' duty of disclosure, Applicants previously submitted substantial documentation regarding Finelite's Series 15 as well as a Clark et al. publication (2004/0252521) that discloses one or more examples similar to the Series 15 (see e.g. Fig. 3B of that publication). All of these materials apparently were received and considered by the Examiner, as indicated by the initials alongside the citations thereof on the PTO-1449 forms, returned with the Office Action. Applicants respectfully submit that the Finelite product, the associated documentation and the Clark et al. publication are not prior art with respect to Applicants' claims that cover the Series 15 because Applicants previously invented the subject matter of those claims. Applicants are submitting herewith a Rule 131/132 declaration showing their prior invention of the claimed concepts.

The inventors' declaration also provides further compliance with their duty of disclosure. The inventors had early dealings with Finelite and briefly with two other companies, under various agreements of confidentiality, as described in the declaration. In particular, the inventors worked with Finelite to prototype the concepts and help Finelite convert the concepts to a commercial product. Finelite broke off joint efforts and completed the S15 product on its own. The activity discussed in the declaration, conducted under non-disclosure and license agreements did not give rise to anything that would constitute prior art with respect to this case. For example, it is believed that there was no publication or offer for sale more than a year prior to the filing date of this case or prior to Applicants' date of invention. It is also submitted that the dealings with Finelite did not involve a public use of the invention more than a year prior to the application filing date or prior to Applicants' date of invention, under the relevant law. However, Applicants request that the Examiner consider all of the facts presented in their

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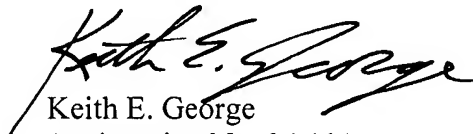
declaration, as part of the reconsideration of this matter, so that the record will show that the claims were found to be patentable in view of all of the disclosed information.

This case should now be ready to pass to issue; and Applicants respectfully request a prompt favorable reconsideration of this matter. It is believed that this response addresses all issues raised by the August 25, 2005 first Office Action. However, if any further issue should arise that may be addressed in an interview or obviated by an Examiner's amendment, it is requested that the Examiner telephone Applicants' representative at the number shown below.

To the extent necessary, if any, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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